



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, DC

AUG 23 2001

MEMORANDUM FOR SEE DISTRIBUTION

FROM: AFMOA/CC
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050

SUBJECT: Revised Policy on the Role of Sports Drinks in Prevention of Dehydration and Heat Illness

Effective immediately, this policy memorandum replaces the AFMOA/CC memo dated 3 July 2001, on the Role of Sports Drinks in Prevention of Dehydration and Heat Illness. It provides additional clarification on the maximum recommended limit for hourly water intake in addition to the previously issued guidelines for the use of sports drink (i.e., Gatorade® or Powerade®) by AF personnel for fluid replacement in a hot environment.

Heat illnesses are a significant safety concern for AF personnel worldwide during seasonal hot and humid weather. Dehydration followed by heat illness can negatively impact mission accomplishment by causing impaired judgment and concentration, fatigue, headaches, light-headedness, and eventual incapacitation. Prevention of heat illness depends upon appropriate fluid replacement and the use of appropriate work-rest cycles (Atch 1). AF personnel exposed to hot and humid environments require up to one quart of water per hour to prevent dehydration and subsequent heat illness. Under normal working conditions, cool water alone provides adequate fluid replacement and normal dietary salt intake suffices to prevent electrolyte imbalances. With prolonged moderate to heavy work in hot and humid environments, half-strength mixes of electrolyte- and carbohydrate-enhanced sports drinks provide additional benefits, including electrolyte replacement and improved compliance with fluid replacement recommendations. Specific recommendations for the use of sports drinks are at Attachment 2.

Hourly fluid intake should not exceed 1½ quarts and daily fluid intake should not exceed 12 quarts. Ingestion of water at greater than 1½ quarts per hour may lead to hyponatremia, also known as acute water intoxication. This is a life threatening condition that may lead to weakness, loss of consciousness, convulsions and death if not recognized and treated promptly.

Organizational O&M funds may be used to procure sports drinks; however, such use is not routinely recommended. Local medical treatment facility commanders or their representatives may recommend that units procure these sports drinks for consumption during the performance of official duties if medically indicated (potable water is limited or unattainable, specific units performing prolonged heavy work in extreme environments), as addressed in AFI 65-601V1, Budget Guidance and Procedures, paragraph 4.45.6, Sports Beverages.

The POCs for questions relating to this matter are Lt Col Vince Michaud or Wing Commander Victor Wallace, AFMOA/SGZA, 110 Luke Avenue, Room 405, Bolling AFB, DC 20332-7050, DSN 297-4200.



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Commander
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Attachments:

1. Guidelines
2. Specific Recommendations

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Attachment 1

Table 1: Training Guidelines for Average Acclimatized Airmen Wearing BDU, Hot Weather¹

Heat Category / Flag Color	Temperature Range WBGT (F) ²	EASY WORK			MODERATE WORK			HARD WORK		
		Work Rest Cycle	Water Intake Qt/hr ³	Work Rest Cycle	Water Intake Qt/hr ⁴	Work Rest Cycle	Water Intake Qt/hr ⁵	Work Rest Cycle	Water Intake Qt/hr	Work Rest Cycle
1	78 - 81.9	No Limit	0.5	No Limit	0.75	40/20 min	0.75	40/20 min	0.75	
3	85 - 87.9	No Limit	0.75	40/20 min	0.75	30/30 min	0.75	30/30 min	1.0	
5	> 90	50/10 min	1.0	20/40 min	1.0	10/50	1.0	10/50	1.0	

¹ The values displayed in the table will sustain performance and hydration for at least 4 hours of work in the specified heat categories. Caution: Hourly fluid intake for both acclimatized and un-acclimatized personnel should not exceed 1½ quarts. Rapid ingestion of water if greater than 1½ quarts per hour may lead to hyponatremia, also known as acute water intoxication. This is a life threatening condition that may lead to weakness, loss of consciousness, convulsions and death if not recognized and treated promptly.

² Wearing body armor adds 5 degrees F to the measured WBGT, thus increasing the heat category by 2 flag conditions.

³ For all 3 work rates, individual water requirement may vary by +/- 0.25 qt/hr.

⁴ When performing work/exercise with ground crew ensemble, fire-fighting gear or other similar restrictive or impermeable clothing arrangements should be made for remote site measurement of the WBGT and 10 degrees F added to the measurement before using tables 3 or 4. Add 15 degree WBGT if also wearing combat armor.

⁵ Rest means minimal physical activity, i.e., sitting or standing, accomplished in the shade if possible

Table 2: Training Guidelines for Average Un-acclimatized Airmen Wearing BDU, Hot Weather⁶

Heat Category / Flag Color	Temperature Range WBGT (F) ⁷	EASY WORK		MODERATE WORK		HARD WORK	
		Work Rest Cycle	Water Intake Qt/hr ⁸	Work Rest Cycle	Water Intake Qt/hr	Work Rest Cycle	Water Intake Qt/hr
1	78 - 81.9	No Limit	0.5	50/10 min	0.75	30/30 min	0.75
3	85 - 87.9	No Limit	0.75	30/30 min	0.75	20/40 min	1.0
5	> 90	40/20 min	1.0	10/50 min	1.0	Not allowed	Not applicable

⁶ The values displayed in the table will sustain performance and hydration for at least 4 hours of work in the specified heat categories. Caution: Hourly fluid intake for both acclimatized and un-acclimatized personnel should not exceed 1½ quarts and daily fluid intake should not exceed 12 quarts. Rapid ingestion of water if greater than 1½ quart per hour may lead to hyponatremia, also known as acute water intoxication. This is a life threatening condition that may lead to weakness, loss of consciousness, convulsions and death if not recognized and treated promptly.

⁷ Wearing body armor adds 5 degrees F to the measured WBGT, thus increasing the heat category by 2 flag conditions.

⁸ For all 3 work rates, individual water requirement may vary by +/- 0.25 qt/hr.

⁹ When performing work/exercise with ground crew ensemble, fire-fighting gear or other similar restrictive or impermeable clothing arrangements should be made for remote site measurement of the WBGT and 10 degrees F added to the measurement before using tables 3 or 4. Add 15 degree WBGT if also wearing combat armor.

¹⁰ Rest means minimal physical activity, i.e., sitting or standing, accomplished in the shade if possible.

Table 3: Examples of Workload Determination

Activity	Workload
• Walking on hard surface @ 2.5 mph with \leq 30 lb load	• Walking on hard surface @ 3.5 mph with < 40 lb load
• Weapon Maintenance	• Walking loose sand @ 2.5 mph with no load
• Manual of Arms	• Patrolling
• Marksmanship Training	• Low crawl, high crawl
• Drill and Ceremony	• Defensive position construction
• Field Assaults	• Field Assaults

Attachment 2

Guidelines for the Use of Sports Drinks for Fluid Replacement

The following guidelines are recommended for each AF installation:

- a. Sports drinks may be indicated when the wet bulb globe temperature (WBGT) is greater than 85° F (Stage 3 or higher), or if prolonged moderate to heavy work is planned (longer than 2 hours). Specific recommendations for fluid intake and work/rest cycles are based on the work level, WBGT, Mission Orientated Protective Posture level, and acclimatization (Table 1).
- b. No particular brand of sports drink is recommended; however, the carbohydrate content should not exceed 15% prior to dilution. Sports drinks should be diluted to half strength (1 part water:1 part beverage or 2 parts water:1 part beverage powder) for optimal fluid replacement.
- c. The half-strength sports drink should be kept cool (60-70° F) or shaded if possible. The beverage must be disposed of after 8 hours if refrigerated, or within 4 hours if allowed to warm. Sports drinks should not be added directly to canteens or bulk water storage (such as water buffaloes or tanks); they should be added to personal drinking cups or larger washable containers for group access. Re-usable containers must be washed and sanitized at the end of every work shift, as the sugar content can provide a good growth medium for bacteria. Unless they are in powdered form, undiluted portions of open sports drink containers should be refrigerated.
- d. Potable cool water must always be available and collocated with the sports drink.